

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
11 August 2005 (11.08.2005)

PCT

(10) International Publication Number
WO 2005/073300 A1

(51) International Patent Classification⁷: **C08J 9/16**,
9/28, C11D 17/00, 17/06

(21) International Application Number:
PCT/GB2005/000311

(22) International Filing Date: 28 January 2005 (28.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0401950.1 28 January 2004 (28.01.2004) GB
0401947.7 28 January 2004 (28.01.2004) GB

(71) Applicant (for AE, AG, AU, BB, BW, BZ, CA, CY, EG, GB, GD, GH, GM, IE, IL, KE, LC, LK, LS, MN, MW, NA, NZ, OM, PG, SC, SD, SG, SL, SZ, TT, TZ, UG, VC, ZA, ZM, ZW only): **UNILEVER PLC** [GB/GB]; Unilever House, Blackfriars, London Greater London EC4P 4BQ (GB).

(71) Applicant (for AL, AM, AT, AZ, BA, BE, BF, BG, BJ, BR, BY, CF, CG, CH, CI, CM, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, FR, GA, GE, GN, GQ, GR, GW, HR, HU, ID, IS, IT, JP, KG, KP, KR, KZ, LR, LT, LU, LV, MA, MC, MD, MG, MK, ML, MR, MX, MZ, NE, NI, NL, NO, PH, PL, PT, RO, RU, SE, SI, SK, SN, SY, TD, TG, TJ, TM, TN, TR, UA, UZ, VN, YU only): **UNILEVER NV** [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).

(71) Applicant (for IN only): **HINDUSTAN LEVER LIMITED** [IN/IN]; Hindustan Lever House, 165/166 Backbay Reclamation, Maharashtra, Mumbai 400 020 (IN).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **COOPER, Andrew, Ian** [GB/GB]; University of Liverpool, Department of Chemistry, Crown Street, Liverpool Merseyside CH69 3BX (GB). **DUNCALF, Duncan** [GB/GB]; Unilever R

& D Port Sunlight, Quarry Road East, Bebington, Wirral Merseyside CH63 3JW (GB). **FOSTER, Alison, Jayne** [GB/GB]; Unilever R & D Port Sunlight, Quarry Road East, Bebington, Wirral Merseyside CH63 3JW (GB). **RANNARD, Stephen, Paul** [GB/GB]; Unilever R & D Port Sunlight, Quarry Road East, Bebington, Wirral Merseyside CH63 3JW (GB). **HAIFEI, Zhang** [GB/GB]; University of Liverpool, Department of Chemistry, Crown Street, Liverpool Merseyside CH69 3BX (GB).

(74) Agents: **ELLIOTT, Peter, William** et al.; Unilever Intellectual Property Group, Patent Department, Colworth House, Sharnbrook, Bedford Bedfordshire MK44 1LQ (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: POROUS BODIES AND METHOD OF PRODUCTION THEREOF

(57) Abstract: The invention provides a method for preparing water dispersible or water soluble porous bodies and the bodies themselves. The bodies have an intrusion volume as measured by mercury porosimetry of at least about 3 ml/g and comprise a three dimensional open-cell lattice containing less than 10% by weight of a water soluble polymeric material and 5 to 90% by weight of a surfactant, with the proviso that said porous bodies are not spherical beads having an average bead diameter of 0.2 to 5mm. The method comprises the steps of: a) providing an intimate mixture of the polymeric material and the surfactant in a liquid medium b) providing a fluid freezing medium at a temperature effective for rapidly freezing the liquid medium; c) cooling the liquid medium with the fluid freezing medium at a temperature below the freezing point of the liquid medium for a period effective to rapidly freeze the liquid medium; and d) freeze-drying the frozen liquid medium to form the porous bodies by removal of the liquid medium by sublimation.

WO 2005/073300 A1